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ABSTRACT

Supplemental instruction (SI) is a non-remedial academic support or peer tutoring program based on the concept that students are more likely to persist in college if they establish a feeling of belonging to their educational institution. The SI model differs from traditional tutoring in the following ways: (1) instead of assisting poor or failing students, SI targets all students in high risk courses; (2) tutors, or SI leaders, must have successfully completed the course and be sensitive, caring individuals; (3) SI leaders are required to attend classes and labs and complete assignments to model appropriate behavior for other students; (4) leaders are trained to view themselves as facilitators and model how to process information through analysis, synthesis, and application; (5) leaders are required to participate in 2-day training sessions and meet with an SI supervisor weekly to continue learning; and (6) all students are encouraged to participate to avoid the stigma attached to traditional tutoring programs. In spring 1993, an SI program was tested in introductory accounting, economics and biology courses at LaGuardia Community College, in New York. A comparison of grades in SI sections and non-SI sections taught by the same professors, indicated that the passing rate increased by 15%. The SI biology section was most successful with the percentage of "A's" increasing from 8% to 17% and "B's" increasing from 13.3% to 25%. All passing rates increased and failure rates decreased in all SI courses. (KP)

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ED 373 850

SUPPLEMENTAL INSTRUCTION: A PEER TUTORING PROGRAM

AT LAGUARDIA COMMUNITY COLLEGE

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Supplemental Instruction: A Peer Tutoring Program

Introduction :

An ancient Chinese Proverb: "Tell me and I forget, show me and I remember, involve me and I understand." sums up in a few words, the underlying philosophy of Supplemental Instruction.

Description of SI:

Supplemental Instruction (SI) is a nationally recognized non-remedial academic support or peer tutoring program. It is based on research on retention (American College Testing Program 1992, Astin 1993, Hamlen 1989, Light 1990,1992, Newman 1985, Noel et. al. 1985, Tinto 1987) and others which emphasizes that students are more likely to persist in college and be retained if they can establish a feeling of belonging to their institution of learning. One of the ways of achieving this goal is by providing students with the opportunity to make contact with their peers ,so that they can develop a working supportive network and in this way become part of an active learning community. Study groups are one way of providing this network and indeed they have shown to significantly increase student performance (Treisman,1985.) The SI model also depends on peer led study groups .

Initiated in 1974 by Deanna C. Martin at the University of Missouri-Kansas City, (Martin & Arendale 1983, 1990, 1992), the model has been certified as an Exemplary Education Program by the US Department of Education. At present, over four hundred institutions of higher learning in the US and abroad including over sixty community college in five countries presently have SI program, Nationally, participation in SI has been shown to significantly reduce course failure, improve average course grades and increase persistance towards graduation (Martin and Arendale 1983,1990,1993 , Wolfe 1987). Our results at LaGuardia, support and have replicated many of these findings.

The SI model is based on a Piagetian constructivist theoretical framework and those who call themselves Constructivists (Blais,1988). This theory holds that learning is an active process of knowledge construction in which learners must "construct" their own knowledge , making it an integral part of themselves so that they can produce it, share it and transform it. Therefore a fundamental tenet of the SI training involves making sure that student leaders become "facilitators" - people who help others learn, rather than"teachers" or "tutors" who impart information.

Therefore, the SI model differs from traditional tutoring in several important ways:

(1) Instead of assisting poor or failing students, SI targets "high risk" courses - difficult courses in which a large percentage of students either fail or receive extremely low

grades (D's, F's W's and WU's). All students enrolled in the course may participate in SI study groups.

(2) The tutor or SI leader is not just a good student or expert in his/her field. Instead, s/he must have successfully completed the course ,received no less than a B, preferably an A, and in addition judged to be a sensitive, caring individual.

(3) In order that the SI student leader remain a true "peer", one who is in touch with what is occuring in class, s/he is required to attend all course lectures and labs, take notes and complete assignments. S/he then organizes a minimum of three weekly out-of-class study group sessions. Because the SI leader attends class s/he knows what is happening in class and can model appropriate student behavior for other students while in class and during the study sessions.

(4) Study group sessions are not designed to "teach" or "tutor" students in a traditional manner. Instead, SI leaders are trained to view themselves as facilitators - they plan sessions that encourage student interaction, assist students with the language of the discipline, help them integrate lectures and readings, assist them in developing active questioning techniques and in general model how to process information through analysis, synthesis and application. The goal is to assist all students to become more active, engaged and independent learners.

(5) Training is not brief or perfunctory . SI student leaders are required to participate in a two day training session prior to the semester.In addition, they meet with the SI supervisor on a weekly basis so that they continue to learn and practice their roles as "facilitators" and student peer models. During these training sessions, group techniques such as collaborative learning are also taught and practiced.

(5) Attendance at SI study sessions is voluntary . All students, not only poor students are encouraged to attend.In this way, SI avoids the stigma that is often attached to traditional tutoring programs.

Evaluative data (Martin & Arendale 1983,1990,1993, Wolfe 1987) has demonstrated that SI is an extremely effective tool for improving student performance and reducing attrition. Nationally, students who participate in SI earn a higher mean course grade and semester GPA's than students electing not to participate and courses offering SI have significantly lower rates of unsuccessful enrollments than these same courses prior to the implementation of SI. Although SI has only been in existence for two semesters at LaGuardia (we are now in the midst of our third semester), our preliminary results replicate many of these findings.

SI at LaGuardia: Spring 1993 semester:

During the Spring 1993 semester we piloted SI, targeting three "high risk" introductory courses - courses that are problematic for our students because they have failure rates of 30% or more.

The courses we targeted were: (1) Principles of Accounting I (2) Introduction to Economics I, and Fundamentals of Human Biology 1

A majority of students were positive in their evaluation of the help they were provided, with 70% rating it as either excellent or good. In their written comments, students repeatedly remarked that they wished that they had SI for all of their classes. Passing rates were appreciably higher in SI courses when compared with identical non-SI courses taught by the same professors. Not only were Passing rates higher but SI improved the academic performance of all students with passing grades increasing approximately 15% when SI sections were compared with non-SI sections taught by the same professors.

Encouraged by these preliminary results, the college applied for and was granted VATEA funding for the 1993-94 academic year and increased the number of courses that would be targeted from three to six.

Fall 1993 semester:

Data from the Fall 1993 semester were equally encouraging! During this semester we again targeted three courses: (1) Fundamentals of Biology 1 2) Principles of Accounting 1 and (3) Introduction to Economics 1

When grades in courses with SI (SI sections) were compared with those of identical sections taught by the same instructor during the fall 1992 semester before SI (non-SI sections), there were important differences.

In the Biology course, successful completion of the course (as defined by students receiving a grade of A,B or C), improved from 43.6% in non-SI sections to 63.2% in SI sections (see Table 1). Also percentages of A's increased from 8% to 17.7 % and B's increased from 13.3% to 25%.

In the Accounting course, successful grades increased from 43.6% to 51.7% with unsuccessful grades dropping from 56.4% to 48.3 percent (see Table 2).

In Economics, similarly, successful grades increased from 27% to 37% with unsuccessful grades dropping from 73% to 63% (see Table 3).

Discussion :

We were puzzled by the differential effect of SI in each of these courses. The largest effect was clearly in the Biology course with smaller effects produced in the Accounting and Economics courses. These differential effects made sense when we tallied and compared the percentage of students who had attended three or more of SI study sessions in each of these courses (see Table 4).

The course with the largest improvement in grades was Biology (student success rate increased from 48.3% to 63.2 %). Table 4 shows clearly that it was in this course that the largest percentage of students attended the SI study sessions (54% attended Biology study sessions as compared with 41% in Accounting and 25% in Economics).

Although our sample is small, it is apparent that SI is working. Students who are attending our sessions are performing at a higher level, failing less and receiving higher grades.

The problem is convincing students ! LaGuardia is an urban community college in which the majority of students balance a difficult schedule of school and outside work. Many are also juggling parenting responsibilities . Our students often have to squeeze studying into their already overloaded schedules.

Attendance at SI study sessions is voluntary. We believe that students will attend these sessions in greater numbers if we can convince them that their participation will make a significant difference in their grades. It is this issue that we are now trying to address in our third semester of SI - the spring 1994 semester.

During the present spring 1994 semester, we are continuing with SI and again three courses have been targeted: (1) Fundamentals of Biology 2 (2) Principles of Accounting 1 and (3) Introduction to Economics 1 .

In order to improve attendance at SI study sessions, a great effort has been made to inform students of the beneficial effects of attending SI sessions . Our SI student leaders have shared the data we have collected from previous semesters . The power of "word of mouth" advertising has been invoked. Students attending SI study sessions have been asked to "spread the word" to their peers about the value of attending these sessions. The SI supervisor has met with professors teaching SI courses and asked them to continually remind their students that these "free tutoring sessions" are available and will help them achieve higher grades. Professors in these courses have agreed when possible, to move their quizzes and exams so that they follow our SI study sessions (One professor now gives his quizzes on Mondays since the SI leader determined that Friday afternoon was a good time for a study session). SI student leaders have adjusted the hours of their SI sessions so as to accomodate as many students as possible. We are hopeful that by these means we will improve attendance at SI study sessions and by doing so improve student performance even more this semester!

In 1632, A Moravian teacher, John Comenius wrote: "He who teachers others, teaches himself." One of the serendipitous effects of SI has been the positive effects on our SI student leaders. In December 1/1993 in their end-of-semester self-evaluations, they wrote:

"My experience as an SI leader has enabled me to grow both emotionally and intellectually."

"Being an SI leader has been very rewarding for me. It makes me feel good about myself when I know that I can do something to help fellow students improve their academic performance."

"In the SI program,I learned many things. One of those things was that I gained more knowledge of Accounting. Things that I didn't understand when I took Accounting, I was able to understand much better when I became an SI leaders. Another thing which I learned was how to communicate better with my peers. I learned to communicate with students from various backgrounds and cultures which will help me later in my future endeavors."

Analyzing these statements, we can see that SI leaders themselves are aware that SI has helped them improve their own knowledge of their subject, bolstered their confidence and enabled them to achieve both intellectual and emotional growth. Perhaps we may even convince some of them that college teaching is an enriching and rewarding profession!

Future plans:

Encouraged by the above data, the college , using VATEA funding, plans to expand SI during the 1994-95 academic year so that a total of 10 sections will be targeted - five in the fall of 1994 , five in the spring of 1995.

We plan to continue working with the same professors and courses but are presently in the midst of identifying additional courses to target. We are studying pass/fail rates - we would like to target other courses that are difficult for our students and therefore serve as "gatekeepers". We are also looking to see which courses receive little other support from other tutoring programs at the college. The SI supervisor has joined a national E mail SI network in order that she may better communicate with others who are involved with SI. Last but not least, we are talking and sharing our data with professors at the college so that we can gain their support in this exciting project! SI is to be presented at a college-wide "Poster" session and an article about SI will appear shortly in the college's newsletter.

Summary and Conclusion:

SI is a non-remedial academic support or peer tutoring program that has demonstrated nationally and internationally that it can improve grades and student performance . Preliminary results at LaGuardia Community College indicate that we are achieving similarly positive results!

For additional information about the SI project at LaGuardia Community College, contact Dr. Joyce Zaritsky at the college. Telephone: (718) 482-5637, E mail: zajlg@cunyvm.cuny.edu

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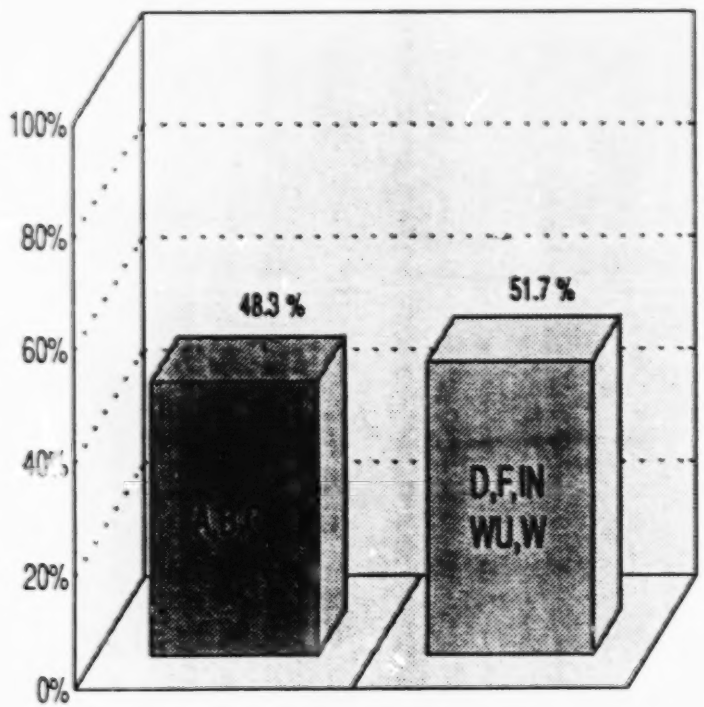
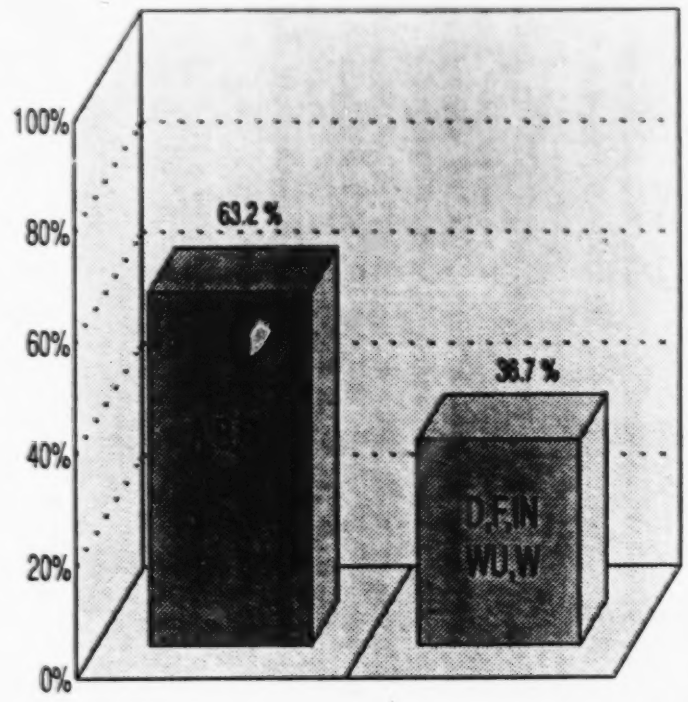
Grade distributions Compared (NON SI vs. SI)
SCB201

(NON SI)
Fall 92
N=60



(SI)
Fall 93
N=68



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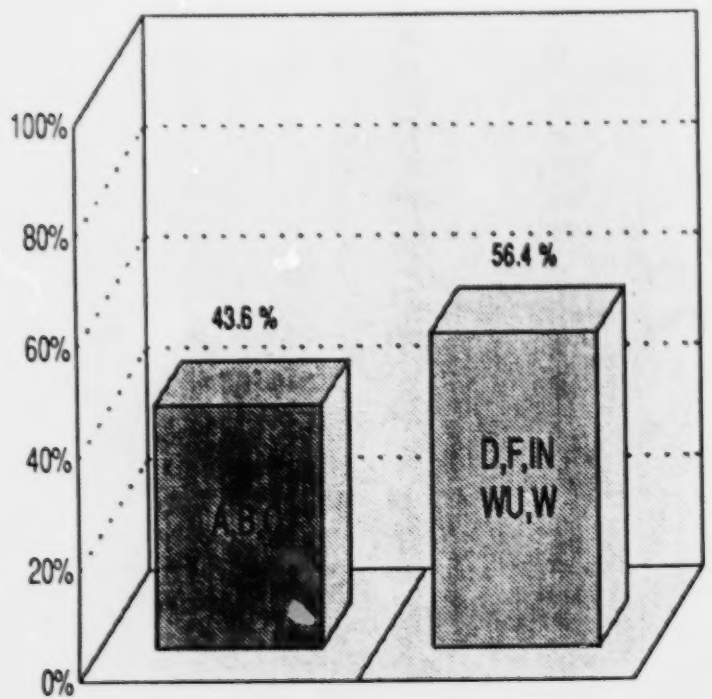
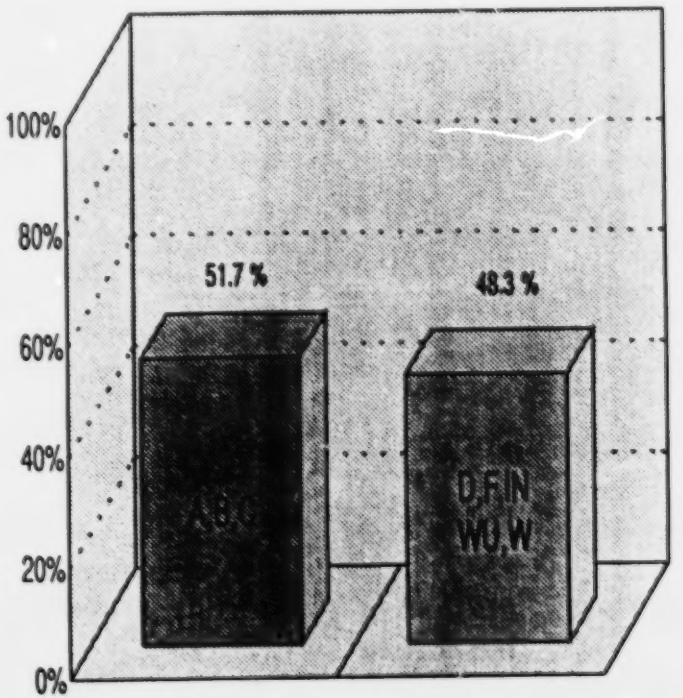
Grade distributions Compared (NON SI vs. SI)
AMA111

(NON SI)
Fall 92
N=39



(SI)
Fall 93
N=29



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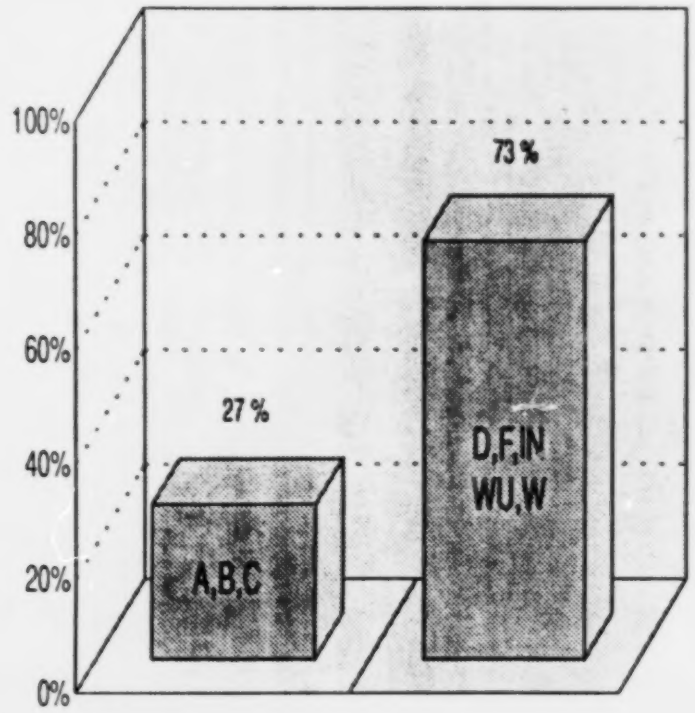
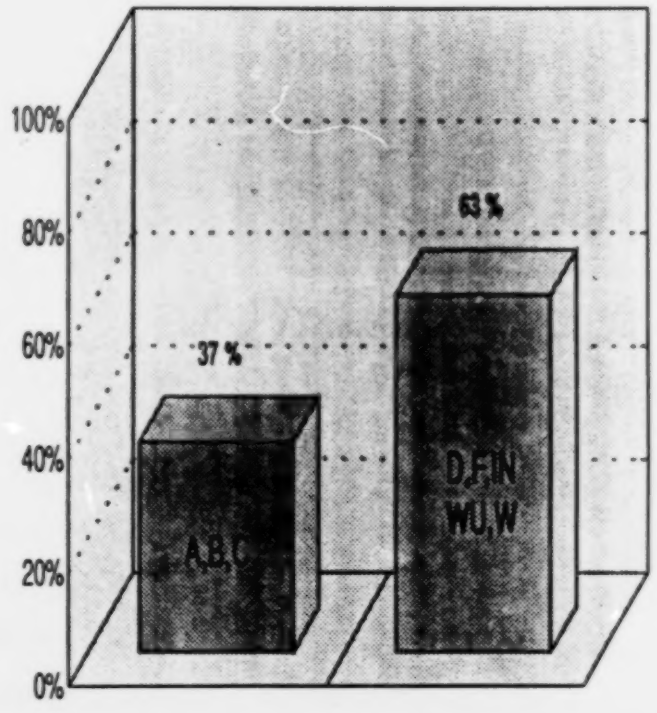
Grade distributions Compared (NON SI vs. SI)
SSE101

(NON SI)
Fall 92
N=26



(SI)
Fall 93
N=27



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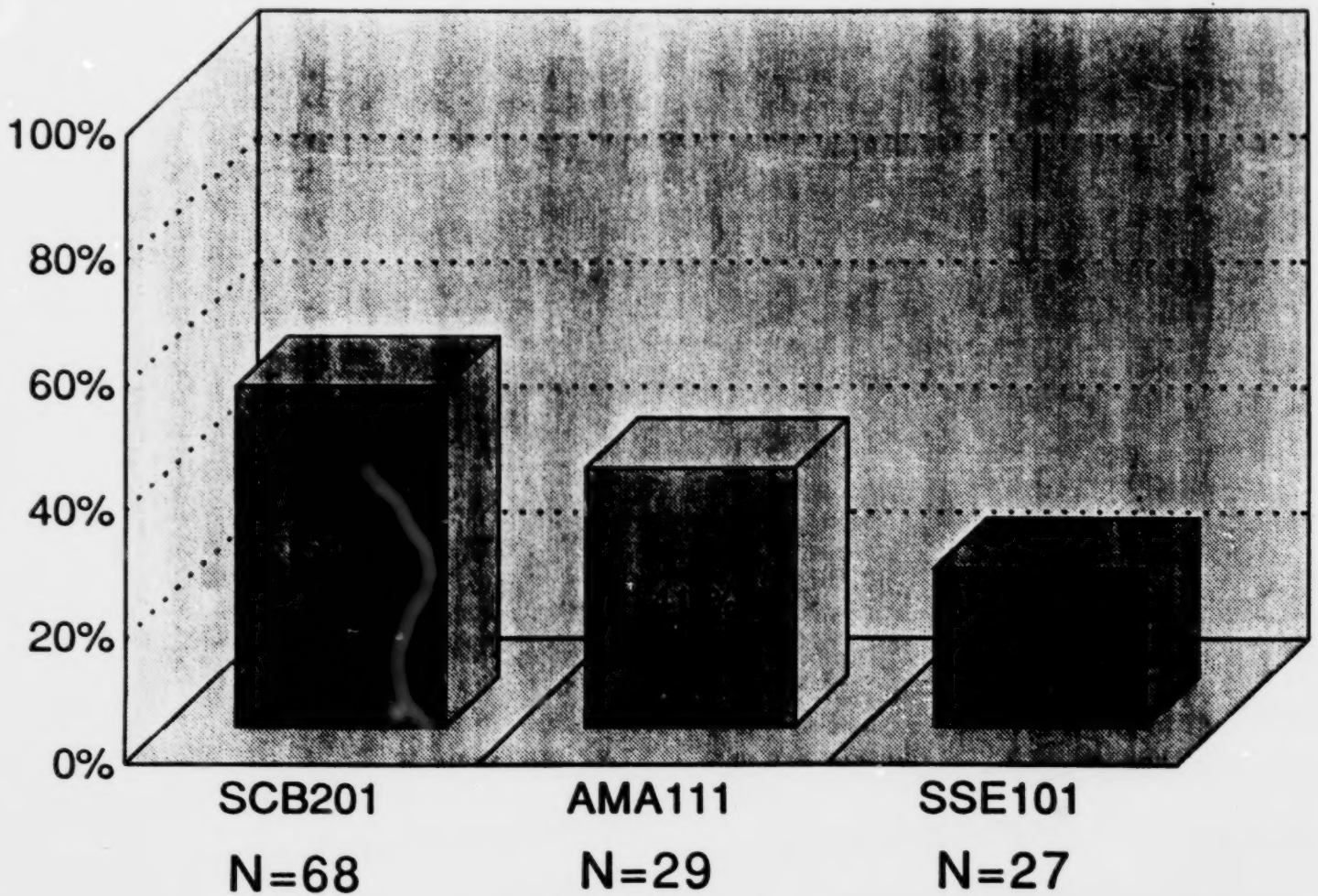
Percentage Students who Attended
SI Study Sessions (Fall 93)



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